FEDERALLY ENDANGERED

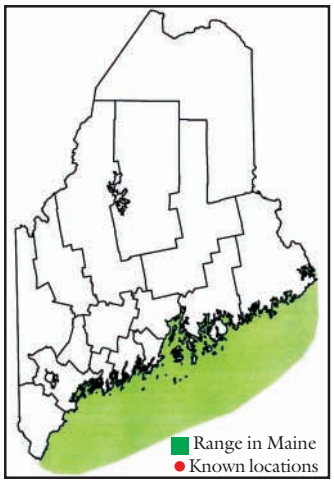
FWC's Florida Marine Research Institute

Leatherback

(Dermochelys coriacea)

Description

The leatherback is the world's largest living marine turtle. Adults reach 11 feet in length and weigh 650-1,500 pounds. This turtle has a smooth shell covered with rubber-like skin and lacks the scutes, or hard bony plates, characteristic of most other turtles. The carapace (top shell) is teardrop-shaped and tapers to a point at the tail. Seven prominent keels run the length of the carapace, which is dark brown to black and covered with small, white to yellowish blotches. The head and neck are black or dark brown with a few white, yellow, or pink blotches. Limbs are paddle-like with black and white spotting. The front flippers are proportionately longer than those of any other sea turtle. The male has a concave plastron (bottom shell), a more tapered carapace, and a tail longer than the hind limbs. Females have extensive pink blotches on the head, and a tail half as long as a male's.



Range and Habitat

Leatherbacks are found in all the world's oceans except the Antarctic. In the Atlantic, they range from the Gulf of Mexico and Caribbean Sea, north to Newfoundland and Labrador, and east to Norway and the British Isles. They are the most frequently encountered marine turtle in the Gulf of Maine, and are common enough to be observed in most years. Leatherbacks are pelagic unless nesting on tropical and subtropical beaches. Nesting locations in the Atlantic are scattered throughout the Gulf of Mexico, Caribbean, and southeast United States. The largest nesting assemblages are found in the U.S. Virgin Islands, Puerto Rico, and Florida. Small numbers of leatherbacks also have been reported nesting in Texas and Georgia.

Life History and Ecology

Leatherbacks have the unique ability among reptiles to regulate their body temperature. Adaptations include heat exchange in the blood vessels in the limbs, a thick insulating layer of oil-saturated fat under the skin, and a large body mass that can retain heat. With these adaptations, individuals can range as far north as the Labrador coast in summer. Because of these and other distinctive features, leatherbacks have been placed in a unique taxonomic family (Dermochelyidae).

Females reach sexual maturity at about four feet of carapace length (about 10 years old). Size at maturity for males is unknown. Female leatherbacks may nest at 2-3 year intervals. They emerge from the sea around midnight and excavate a nest chamber into which they deposit 80-90 eggs, then cover them with sand and depart. Incubation lasts 60-65 days, and hatchlings emerge after dark. A female may lay six clutches a season at 8- to 12-day intervals.

Jellyfish, comb jellies, salps, and other related animals are the preferred food of the leatherback. Its mouth, throat, and esophagus are lined with numerous backward-pointing spines to aid in

swallowing slippery prey. Leatherbacks follow the migration of jellyfish, their primary food, along the Gulf Stream and into the Gulf of Maine in late summer, then return to southern waters by winter. In some years, they are locally common south of Long Island and in central and eastern portions of the Gulf of Maine. They winter in the Gulf of Mexico and along the Florida coast. Since the leatherback's preferred food is the arctic jellyfish, the outer Gulf of Maine is an important feeding area. Though leatherbacks are pelagic, they occasionally enter shallow waters in bays and estuaries. They more typically occur west of the Gulf Stream at water depths greater than 200 feet. They dive almost continuously to depths of up to several thousand feet. They may live to be over 30 years old.

Threats

Sea turtles face many natural obstacles to their survival. Predators such as raccoons, ants, and crabs consume eggs in the nest. Hatchlings are eaten by fish, seabirds, and a host of other marine predators. Like other turtle populations, high loss of young is balanced by the longevity of adults. Any additional sources of mortality can cause population declines. Declines are attributed to tremendous overharvest of eggs, killing of adults, and incidental take by shrimp trawlers. Leatherbacks may become entangled in longlines, fish traps, buoy anchor lines, and other ropes and cables. Entanglement in fishing gear and mortality from trawlers occasionally occur in the Gulf of Maine and usually results in drowning. Turtles are also vulnerable to boat collisions. Nesting habitat is degraded by beachfront development, dredging, and channelization projects. Lights from coastal development discourage nesting adults and disorient hatchlings. New research suggests that a disease now killing many sea turtles (fibropapillomas) may be linked to pollution in the oceans and in nearshore waters. Oil spills, urban runoff of chemicals, fertilizers, and petroleum all contribute to water pollution. Discarded plastic bags and wrappers, helium balloons, and monofilament fishing line that end up in the ocean can also be deadly to sea turtles, as well as to other marine life. Balloons and plastic bags, when floating in water, resemble jellyfish. When turtles mistakenly eat these items or fishing line, their digestive systems become blocked and they eventually die.

Conservation and Management

Leatherback populations are declining rapidly. The worldwide population may be only 20,000-30,000 nesting females. Only a few hundred nest in the southeastern U.S. The leatherback was federally listed as endangered in 1970. Strict protection of individuals and nests, and the use of turtle-excluding devices in shrimp trawls, have contributed recently to slight population increases.

From 1986-1997, the leatherback was state-listed as endangered in Maine because of its federal listing status. However, in 1996, the Maine Legislature changed the Maine Endangered Species Act and discontinued the automatic state-listing of federally listed species. As a result, this species was removed from the Maine Endangered Species List in 1997.

Recommendations:

The Maine Department of Marine Resources has lead management authority for marine turtles, including the leatherback, and makes the following recommendations.

✔ Leatherbacks are regularly encountered in the Gulf of Maine. Specially designed gear and frequent tending of traps and nets may help to prevent deaths from entanglement.

✔ Enforce national and international laws to minimize the dumping of pollutants and solid waste into the ocean and nearshore waters. Prohibit overboard discharge of waste in Gulf of Maine waters.

✔ Avoid use of balloons, especially in coastal areas. The National Wildlife Federation, Center for Marine Conservation, and other marine conservation groups discourage the use of helium-inflated balloons because they may drift into marine waters and become a hazard to marine wildlife when ingested. More information on the hazards of plastics in the marine environment to marine turtles and whales can be found at www.pacificwhale.org/childrens/fsdebris.html.

✔ Include in Gulf of Maine marine oil spill contingency plans strategies for rehabilitating oiled marine turtles, especially in late summer.

✔ Develop protocols for rescuing and resuscitating cold-stunned sea turtles.

✔ To reduce adult mortality in Southeast and Gulf of Mexico fisheries, encourage use of turtle excluder devices (TEDs) and gill net regulations.